

Remarks

1. Applicant has amended Claims 1, 14 and 20 to indicate more clearly that the unit for converting includes a weighting device for weighting each channel using a respective transfer function between the respective loudspeaker and the reference point in question to obtain weighted channels. The transfer functions are indicated by UF11 to UF52 in Fig. 1. Thus, the weighting device includes each of those transfer functions so that the weighted channels at the output of blocks UF 11 to UF 52 can be generated.

Furthermore, the unit for converting includes an adding device for each reference point. The first adding device is adder 22 in Fig. 1, which only adds weighted channels, which were generated using transfer functions between the loudspeakers and the first reference point. In Fig. 1, these are the transfer functions UF, which have a "1" as the second number.

Furthermore, the unit for converting includes an adding device for the second reference point, which is adder 23. This adder device adds weighted channels generated using transfer functions between the loudspeakers and the second reference point. These transfer functions are transfer functions UF having a "2" as the second number.

Furthermore, Applicant has amended the claims in that the first and second reference points are different from each other. This amendment is supported by Fig. 2 and for example page 8, second paragraph, lines 4 and 5 of the specification with accompanied the preliminary amendment filed with the application.

Furthermore, Applicant has clarified that the unit for evaluating evaluates the audio test sum signals output by the adding devices *i.e.* evaluates at least two test sum signals, because there are at least two adding devices.

Similar amendments have been performed in independent method Claim 14.

In Claim 20, Applicant has replaced the term "folding" with the term "convoluting" to bring the last paragraph into conformity with the penultimate paragraph of Claim 20.

2. 35 U.S.C. 112.

Regarding section 2 of the Office Action, Applicant has amended Claim 4 as becomes clear from the replacement claims herein.

Furthermore, Applicant has amended Claim 17. This amendment is supported by the last paragraph of page 5 of the specification which accompanied the preliminary amendment filed with the application.

3. 35 U.S.C. 103

Amended Claim 1 defines a system for evaluating the quality of an audio test signal, which is derived from an audio reference signal by coding and decoding, which does not require any loudspeakers or microphones. Instead as is clear from the definition of the unit for converting, the invention only requires transfer functions, such as UF 11 to UF 52 of Fig. 1 and adders such as 22, 23, for generating the two test reference sum signals which are to be input into the quality evaluation unit 20.

Thus, the inventive system is useful for an efficient and easy to perform quality evaluation without loudspeakers, without microphones, without studio rooms, without an artificial head, etc. as it is outlined in the second paragraph of page 5 or the penultimate and ultimate paragraphs of page 5.

Furthermore, the inventive system has a potential for providing high quality audio evaluation, which is for example outlined in the third paragraph of page 5 or the first paragraph of page 6.

Suzuki (EP 0 165 733) discloses a method and an apparatus for measuring and correcting acoustical characteristic in the sound field. The sound field is generated by a certain number of loudspeakers. The sound field is, then, recorded using two microphones at the positions of ears of a dummy mannequin. Importantly, the output signals of the two microphones are added using adder 1-14 in Fig. 9 or adder 3-62 in Fig. 11 or arithmetic unit 5-17 in Figs. 19, 20 and 21, which arithmetic unit performs an addition as becomes clear for example on page 34, second paragraph, line 8 of Suzuki.

It is an essential feature in Suzuki that the adder 1-14 is provided, which adds the two output signals of the two microphones in the ears of the dummy head as becomes clear from the second paragraph of page 19 of Suzuki.

Thus, apart from the fact that Suzuki does not disclose a system from evaluating, and apart from the fact that Suzuki discloses nothing with respect to the fact that the audio test signal is derived from an audio reference signal by coding and decoding, and apart from the fact that Suzuki does not disclose an audio reference signal, there exist the following differences:

Suzuki does not disclose a weighting device for weighting each channel using a respective transfer function between the respective loudspeaker and the reference point in question to obtain weighted channels. Instead, Suzuki, simply discloses four loudspeakers which emit signals, which are superposed in the air, and are recorded by the two microphones 1-3L and 1-3 R in Fig. 9 of Suzuki. Thus, Suzuki is completely silent on a respective transfer function between the respective loudspeaker and the reference point. For the set-up in Fig. 9, Claim 1 in its amended form requires a weighting device having eight transfer functions for characterizing the transmission path from each loudspeaker to each microphone.

Furthermore, Suzuki does not disclose an adding device from each reference point. In the dummy head, there are simply two microphones. Thus, adding device from each reference point does not exist.

5 Furthermore, Suzuki is completely silent in that the adder for a reference point only adds the weighted channels generated using transfer functions between the loudspeakers and the current reference point as defined in the penultimate paragraph of amended Claim 1. Suzuki is completely silent on this feature.

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Finally, Suzuki discloses use of the adder 1-14 for adding the two microphone signals, as is clear from Fig. 9 and all other figures. Then, a sum signal is input into an analyzer. In contrast thereto, the quality evaluation in accordance with the invention is performed using both audio test sum signals and using both audio reference sum signals.

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Seitzer (WO 98/23130) discloses a hearing-adapted quality assessment of audio signal.

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Furthermore, Seitzer is completely silent on generating the reference signal 12 or the test signal 14 used in Fig. 8. Stated in other words, Seitzer does not disclose any feature of the unit for converting so that one receives two reference sum signals, two reference test signals based on a plurality of loudspeakers which are positioned at different positions in a room as outlined in the first paragraph of Claim 1. Seitzer is completely silent on this.

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Therefore, Seitzer does not anticipate Claim 1.

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A combination of Seitzer and Suzuki would not be performed by those skilled in the art, because it would not make any sense to combine a method and apparatus for measuring and correcting an acoustic characteristic in a sound

field to a hearing-adapted quality assessment of audio signals. It is the purpose of Suzuki to generating a flat frequency response within a vehicle for example. Thus is obtained by controlling a graphic equalizer such as item 3-2 in Fig. 11. Thus, the signals output by the loudspeakers 3-4 L and 3-4 R in
5 Fig. 11 of Suzuki are pre-distorted by means of the graphic equalizer so that the microphones can record a flat frequency response. This has nothing to do with the quality assessment of a signal. Accordingly, no motivation exists for combining the cited references nor would a skilled person be likely to succeed in producing the claimed invention with the devices set forth in the
10 cited combination of references.


The Examiner interprets Suzuki so that the adder 1-14 in Fig. 9 corresponds to the adding device for each reference point. In view of the amendment in Claim 1, that the first and second reference points are different from each
15 other, this interpretation of Claim 1 cannot be upheld. Particularly, the first adding device in Claim 1 adds a first group of weighted channels, while the second adding device adds a second group of weighted channels, while the single adder 1-14 in Fig. 9 in Suzuki adds two microphone signals.

20 In the second paragraph of page 4 of the Office Action, the Examiner states that transfer function between a loudspeaker and a reference point corresponds to the "single transmission function" mentioned in the last paragraph of page 19, line 6. However, Suzuki, only discloses a single transmission function from all loudspeakers to the adder 1-14 output, while
25 the inventive transfer function describes the transmission path between a certain loudspeaker and a certain reference point so that a lot of transfer functions are required in the invention, while there only exists a single "transmission function" in Suzuki. Stated differently, there is a transfer function from each loudspeaker to each reference point in the Claim 1
30 system, while Suzuki only discloses a single "transmission function" as outlined in the last paragraph of page 19 of Suzuki.

Should the Examiner deem it helpful, he is encouraged to call Applicant's attorney, Michael A. Glenn at (650) 474-8400.

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Respectfully submitted,



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